Update - FDR/UPSTREAM v3.1.4c

FDR/UPSTREAM Workstation/Server v3.1.4c is an update to v3.1.4b, a major release containing a number of new features and problem resolutions.

New features include:

- S/390 Linux. FDR/UPSTREAM now supports SuSE Linux on S/390 hardware. See the Linux instructions in the current FDR/UPSTREAM manual for specifics on installation and use.
- Support for up to 255 character file names.
- A number of Windows 2000 specific features including the COM+ database, certificate server and cluster server. Windows 2000 System State disaster recovery procedures are documented.
- (UNIX/Windows) Multi-processing UPSTREAM. UPSTREAM is now automatically capable of supporting multiple simultaneous executing instances of UPSTREAM in the same directory. Workpath, restarts and a number of other issues are automatically handled.
- (Notes R5) A number of Lotus Notes enhancements including support for multiple simultaneous backups and incremental support.
- (Novell SMS) Procedures for utilizing open file support in NetWare v5.1 with NSS volumes.

Windows 2000 COM+ Class Registration Database (v3.1.4a)

UPSTREAM now has the capability of backing up and restoring the Windows 2000 COM+ Class registration database. In Windows NT/95/98/ME, the COM Class registration information is kept in the registry and is thus backed up with the registry.

COM+ is new for Windows 2000 and its Class registration information is kept in a separate database. Ironically, the original need for the registry was to handle the COM Class registration information, but the registry's use was expanded to handle all types of hardware and software configuration information as well. Now Microsoft has removed the COM+ Class registration information from the registry.

The COM+ Class Registration Database File

The COM+ Class registration database is stored on disk in files maintained in the %SystemRoot%\Registration directory. These files have the following extensions:

- ·.clb
- ·.crmlog

These files are not directly backed up by UPSTREAM since they are referenced in the **ComPlus** value of the **\HKLM\SYSTEM\CurrentControlSet\Control\BackupRestore\FilesNotToBackup** key of the registry. UPSTREAM instead deals with the entire COM+ Class registration database as a single internally generated file named **%SystemRoot\system32\config\COM+**. UPSTREAM handles this COM+ file just like one more registry hive file and will back it up and restore it along with the other registry hive files. Refer to the section of the manual that deals with backing up the registry for how to enable this option. So long as the registry option is enabled, and the COM+ database is part of your file spec, it will be included in the backup or restore.

Of course, the COM+ file is not a real file. It does not exist on the disk before or after a backup or restore. This file is created as needed by UPSTREAM during a backup using the RegDBBackup function and restores it using the RegDBRestore function. After the file is backed up or restored, temporary files are deleted.

Windows 2000 Certificate Server (v3.1.4a)

Overview

UPSTREAM now has the capability of backing up and restoring a Windows 2000 Certificate Server database. This capability is made possible through the use of a FDR/UPSTREAM feature called PlugIns and a PlugIn module named CertServ.dll. The CertServ PlugIn (CertServ.dll) uses the Certificate Server (CertSrv) Backup API to perform online backups and offline restores of the Certificate Server. This document describes the specifics of the CertServ.dll PlugIn module. Refer to the *FDR/UPSTREAM PlugIns* section for more information about how UPSTREAM interacts with PlugIn modules. This document assumes that you are familiar with the Certificate Server, its terminology and how to manage it.

CertServ PlugIn Backups

The CertServ PlugIn can be used with UPSTREAM on any Windows 2000 operating system machine on which the following DLL files exist:

- CertServ.dll
- NTDSBMSG.dll
- NTDSAPI.dll
- NETAPI32.dll

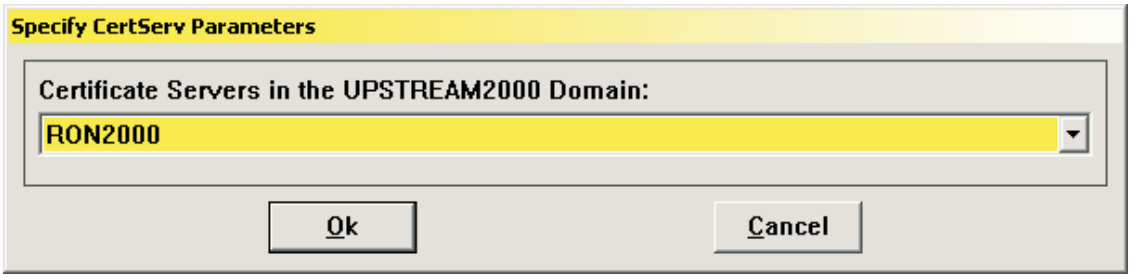
UPSTREAM running on this machine can use the CertServ PlugIn to backup any number of Certificate Server servers as long as they reside in the same domain as the machine on which UPSTREAM is run.

All CertServ PlugIn backups are full backups, even if you select Incremental merge as your backup type. The CertSrv Backup API does not support incremental backups. Since a single Certificate Server may become quite large, you may decide to include the CertServ file specifications for your First-time full and Full merge backups only.

From UPSTREAM on your Windows 2000 PC, to specify the use of the CertServ PlugIn to back up a single Certificate Server, use the Backup Parameters dialog to add a new file specification (or select a file specification that you want to alter) and then press the **PlugIn…** button. The file spec is not used by the PlugIn. The *PlugIn for File Specification…* dialog is then displayed.

CertServ has a unique PlugIn ID number of 6 and a descriptive name of **Windows Certificate Server**. The PlugIn ID number is used internally by UPSTREAM to uniquely identify PlugIn modules. The descriptive name is used on the *PlugIn for File Specification ...* dialog to select this PlugIn for use with a particular file spec.

If you press **PlugIn Parameters...** the dialog specific to Certificate Server is displayed:



The only option is a pull down to select the fully qualified DNS style name of the certificate server you wish to back up. In the above example, RON2000 is the name of a certificate server and UPSTREAM2000.com is the name of the domain in which it resides.

CertServ uses the CertSrv Backup API to get the names of the individual Certificate Server files to be backed up and then packages these files together in a single virtual file named *\\servername\CertServ\CertServ.bin*. For example, \\RON2000.UPSTREAM2000.com\CertServ\CertServ.bin. CertServ makes this virtual file appear as a real file to UPSTREAM, which then backs it up in the normal manner.

CertServ requires a specific set of file specification parameters that it sets automatically. As a result, the *Backup Parameters* dialog does not allow you to modify the Backup Specification field or press the *Spec Detail...* button to alter the rest of the file specification parameters.

The CertServ PlugIn may be used for multiple file specifications as long as the Certificate Server (DNS style) names are unique for each file specification. The CertServ PlugIn may also be used in conjunction with other file specifications that do not use PlugIns or use other PlugIns as long as the other PlugIns also allow this combination.

To backup a Certificate Server, the Certificate Services service must be started. The backup is then an on-line backup.

CertServ PlugIn Restores

To start a restore from the server to be restored, in UPSTREAM pull down the **Action** menu and select the **List and Restore**. If the latest backup version of the current backup profile had multiple file specifications and one or more of these file specifications did not use the CertServ PlugIn, the *Inquire/Restore PlugIn Selection for Profile...* dialog will be displayed.

From this dialog, select the **Windows Certificate Server** item and press the **Continue…** button. When the Continue… button is pressed or if the backup version contains file specifications that all use the CertServ PlugIn, the *Inquire/Restore for Profile...* dialog is displayed.

On this dialog you will see all of the top-level file specifications included in this backup version. If you attempt to expand a file specification that does not use the CertServ PlugIn, the list of files for that file specification will not be displayed. Find the file specification for the Windows Certificate Server to be restored and highlight the **CertServ.bin** file for that file specification and press the **Select for Restore** button.

This will enable the **PlugIn…** button (the **More…** button will not be enabled since the CertServ PlugIn requires complete control of the file specification parameters). Press the **PlugIn…** button to display the *PlugIn for File Specification ...* dialog. Press the **PlugIn Parameters...** button to display the *Specify CertServ Parameters* dialog (the same one described above for backups).

The server name drop down list will contain the names of all of the DNS style names of the Certificate Server servers in your local domain.

Once you have set the CertServ PlugIn parameters to your liking, press the **Ok** button to return to the *PlugIn for File Specification* ... dialog. You will now see the **Parameters** field filled in with a set of parameters in the format *SERVER=servername*. For example:

```
SERVER=RON2000
```

You can then proceed to start the restore.

To restore a Certificate Server, the Certificate Services service must be started. The CertServ PlugIn will stop the Certificate Services service after the restore is started. The Certificate Services service will remain stopped after the restore has finished.

Host Initiating CertServ Backups and Restores

Like all other UPSTREAM backups and restores, those that use the CertServ PlugIn may also be initiated from the host via a USTBATCH job. The parameters for such a backup or restore are the same as any other backup or restore with the addition of the following parameters in the file specification section (i.e. after the SPECNUMBER:

FILES \\servername\CertServ\CertServ.bin
PLUGIN CertServ.dll
PLUGINPARAMETERS SERVER=servername

Each PlugIn module has a specific set of PlugIn specific parameters (specified with the PLUGINPARAMETERS UPSTREAM parameter). The format for the PlugIn parameters for CertServ is:

```
SERVER=servername
```

Where:

- **SERVER=servername** The name of a Certificate Server.

Note that the file spec is not verified as it will be internally generated but must be specified.

Windows 2000 Cluster Server Quorum Database (v3.1.4a)

Overview

UPSTREAM now has the capability of backing up and restoring a Windows 2000 Cluster Server quorum database. This capability is made possible through the use of a FDR/UPSTREAM feature called PlugIns and a PlugIn module named Cluster.dll. The Cluster PlugIn (Cluster.dll) uses the Cluster Server (ClusApi.dll) Backup API to perform online backups and offline restores of the Cluster Server quorum database. This document describes the specifics of the Cluster.dll PlugIn module. Refer to the *FDR/UPSTREAM PlugIns* section for more information about how UPSTREAM interacts with PlugIn modules. This document assumes that you are familiar with the Cluster Server quorum database, its terminology and how to manage it.

Cluster PlugIn Backups

The Cluster PlugIn can be used with UPSTREAM on any Windows 2000 operating system machine on which the following DLL files exist:

- CLUSAPI.dll
- NETAPI32.dll
- MPR.dll

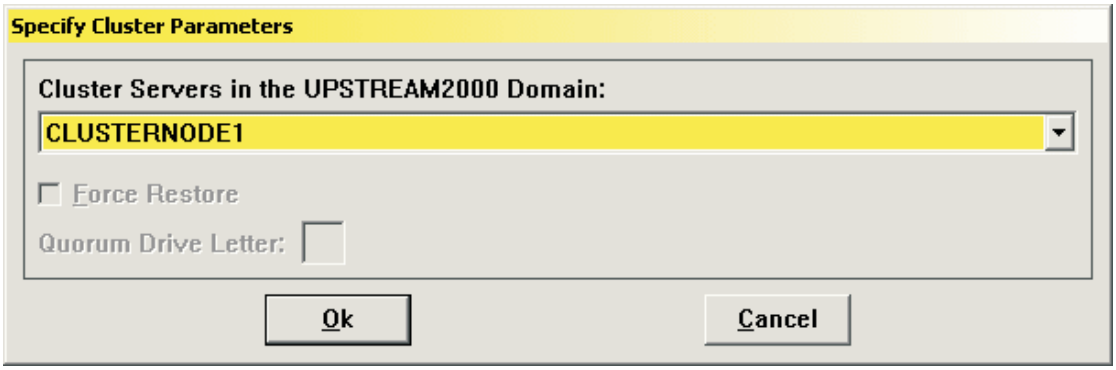
UPSTREAM running on this machine can use the Cluster PlugIn to backup any number of Cluster Server servers as long as they reside in the same domain as the machine on which UPSTREAM is run.

All Cluster PlugIn backups are full backups, even if you select Incremental merge as your backup type. The Cluster Backup API does not support incremental backups. Since a single Cluster Server may become quite large, you may decide to include the Cluster file specifications for your First-time full and Full merge backups only.

From UPSTREAM on your Windows 2000 PC, to specify the use of the Cluster PlugIn to back up a single Windows Cluster server, use the Backup Parameters dialog to add a new file specification (or select a file specification that you want to alter) and then press the **PlugIn…** button. The file spec is not used by the PlugIn. The *PlugIn for File Specification…* dialog is then displayed.

Cluster has a unique PlugIn ID number of 7 and a descriptive name of **Windows Cluster Server**. The PlugIn ID number is used internally by UPSTREAM to uniquely identify PlugIn modules. The descriptive name is used on the *PlugIn for File Specification …* dialog to select this PlugIn for use with a particular file spec.

If you press **PlugIn Parameters...** the dialog specific to Cluster Server is displayed:



For backup, the only parameter is the name of the cluster server you wish to backup. Select the one you wish to use from the pull-down.

Cluster uses the Cluster Server (ClusAPI) Backup API to backup the cluster database files to a temporary directory on disk and then packages these files together in a single virtual file named \\servername\Cluster\Cluster.bin (ex: \\CLUSTERNODE1\Cluster\Cluster.bin). Cluster makes this virtual file appear as a real file to UPSTREAM, which then backs it up in the normal manner.

The actual Cluster Server quorum database is maintained on a special disk drive that is managed solely by the Cluster Server. This is typically the Q: drive of a clustered system. This quorum database drive should not be included in your normal backups since the files on this drive are managed by the Cluster Server and cannot be restored normally.

Cluster requires a specific set of file specification parameters that it sets automatically. As a result, the *Backup Parameters* dialog does not allow you to modify the Backup Specification field or press the *Spec Detail...* button to alter the rest of the file specification parameters.

The Cluster PlugIn may be used for multiple file specifications as long as the Cluster Server names are unique for each file specification. The Cluster PlugIn may also be used in conjunction with other file specifications that do not use PlugIns or use other PlugIns as long as the other PlugIns also allow this combination.

Cluster PlugIn Restores

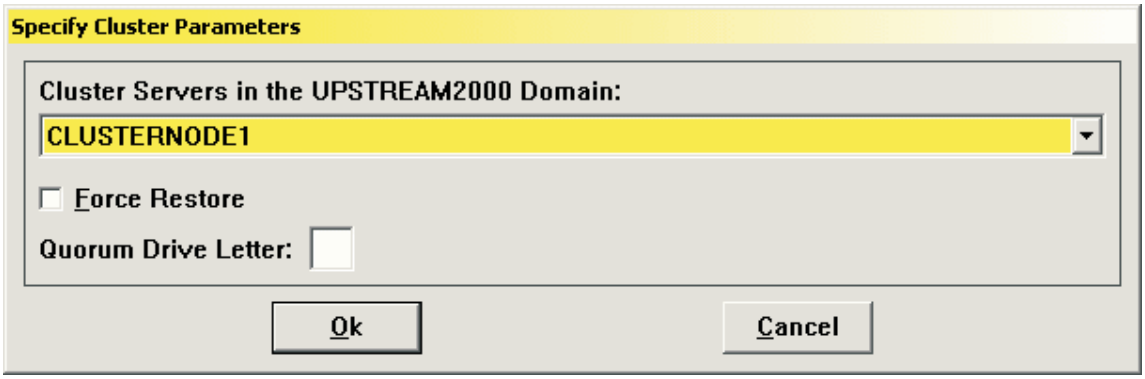
To start a restore from the server to be restored, in UPSTREAM pull down the **Action** menu and select the **List and Restore**. If the latest backup version of the current backup profile had multiple file specifications and one or more of these file specifications did not use the Cluster PlugIn, the *Inquire/Restore PlugIn Selection for Profile...* dialog will be displayed.

From this dialog, select the **Windows Cluster Server** item and press the **Continue…** button. When the Continue… button is pressed or if the backup version contains file specifications that all use the Cluster PlugIn, the *Inquire/Restore for Profile...* dialog is displayed.

On this dialog you will see all of the top-level file specifications included in this backup version. If you attempt to expand a file specification that does not use the Cluster PlugIn, the list of files for that file specification will not be displayed. Find the file specification for the Windows Certificate Server to be restored and highlight the **Cluster.bin** file for that file specification and press the **Select for Restore** button.

This will enable the **PlugIn…** button (the **More…** button will not be enabled since the Cluster PlugIn requires complete control of the file specification parameters). Press the **PlugIn…** button to display the *PlugIn for File*

Specification ... dialog. Press the **PlugIn Parameters...** button to display the *Specify Cluster Parameters* dialog.



The server name drop down list will contain the names of all of the machines in the local domain. The current server name will be the name of the server from which the Cluster Server quorum database was backed up, taken from the file spec for the backup. The remaining parameters are discussed below in the *Special Rules for Restores* section.

Once you have set the CertServ PlugIn parameters to your liking, press the **Ok** button to return to the *PlugIn for File Specification ...* dialog. You will now see the **Parameters** field filled in with a set of parameters. For example:

```
SERVER=CLUSTERNODE1 FORCE=N QUORUMDRIVELETTER=
```

Special Rules for Restores

While backups of a Cluster Server node can be performed from any other Windows 2000 system in the domain, restores to a Cluster Server node must be performed on the Cluster Server node. Remote restores are not possible.

To perform a restore to a Cluster Server node, only the node that is being restored to can be running the Cluster service. All of the other cluster nodes in the cluster must be stopped (i.e. not running the Cluster service). For this reason, you must manually shut down the Cluster service on all the other nodes. The exception to this rule is when you specify FORCE=Y sub parameter of the PLUGINPARAMETERS for the restore. In this case, the restore process will shut all of the other nodes in the cluster down.

Another requirement for a successful restore is that the quorum disk (Q: by default) must have the same partition layout (number of partitions and offsets to each partition) as the quorum disk described in the backup. If this is not the case, you must manually reconfigure the quorum disk to match the layout described in the backup. Again, the exception to this rule is when you specify FORCE=Y sub parameter of the PLUGINPARAMETERS for the restore. In this case, the restore process will attempt to reconfigure the quorum disk to match the disk described in the backup.

In the case where the quorum database is now on a drive other than the default Q: drive, specify the QUORUMDRIVELETTER=?: sub parameter of the PLUGINPARAMETERS for the restore. Use the form "?:", where ? is the drive letter of the quorum database drive.

In most cases you will not need to specify FORCE=Y or QUORUMDRIVELETTER=?: if you start the restore by manually stopping all of the cluster nodes for the cluster other than the node that you will be restoring to. Also, since the quorum database is shared between the various cluster nodes, it is not necessary to restore to all of the nodes of the cluster. Only one restore is required for an entire clustered system.

Host Initiating Cluster Backups and Restores

Like all other UPSTREAM backups and restores, those that use the Cluster PlugIn may also be initiated from the host via a USTBATCH job. The parameters for such a backup or restore are the same as any other backup or restore with the addition of the following parameters in the file specification section (i.e. after the SPECNUMBER parameter):

```
FILES \\servername\Cluster\Cluster.bin
PLUGIN Cluster.dll
PLUGINPARAMETERS SERVER=servername FORCE=yn QUORUMDRIVELETTER=drive
```

The correct format for the FILES parameter is not crucial since the Cluster PlugIn will override it anyway and force it to be \\servername\Cluster\Cluster.bin. It does this by getting the real server name from the PLUGINPARAMETERS value.

The format for PLUGINPARAMETERS is:

```
SERVER=servername FORCE=yn QUORUMDRIVELETTER=drive
```

Where:

- **SERVER=servername** The name of a Cluster Server to be backed up or restored.
- **FORCE=yn** An optional parameter used only for restore. The value must be either ‘Y’ or ‘N’. When set to ‘Y’, a restore is forced. This is discussed in detail in the *Special Rules for Restores* section above.
- **QUORUMDRIVELETTER=drive** An optional parameter used only for restore. The value must be blank or in the form “?:”, where ? is ‘a’ – ‘z’ or ‘A’ – ‘Z’.

Windows 2000 System State Disaster Recovery

In Microsoft® Windows® 2000 Server, system state data comprises the registry, COM+ Class Registration database, system startup files, and the Certificate Services database (if the server is a certificate server). If the server is a domain controller, Active Directory services and the Sysvol directory are also contained in the system state data. If the server is running the Cluster Service , the system state data also includes resource registry checkpoints and the quorum resource recovery log, which contains the most recent cluster database information. You must be sure to include all the system state components in your backups.

When you restore the system state data, Microsoft recommends that all system state data that is relevant to your computer be restored: you should not restore individual components of the system state data. This is due to dependencies among the system state components.

The recommended procedure for a disaster recovery restore of the system state is:

☐ 1. Reinstall the operating system as a stand-alone server or workstation that is not a member of a domain.

☐ 2. If the system was a Domain Controller, decide whether you want to perform an authoritative or non-authoritative restore of the Active Directory and the SysVol.

NOTE: If you restore the Active Directory authoritatively you must also restore the SysVol authoritatively.

☐ 3. Perform an UPSTREAM restore of the entire contents of all of the local disk drives. Make sure that you have the option for restoring the registry turned on. Select the appropriate option for an authoritative or non-authoritative restore based on the answer to step #2.

☐ 4. If the system was a Domain Controller:

- A. Reboot the system in Active Directory Restore Mode.
- B. Perform an UPSTREAM restore of the Active Directory using the WinAD PlugIn, either authoritatively or non-authoritatively based on the answer to step #2.

☐ 5. Reboot the computer. It will now assume the role that it had before the disaster except for its role as a Certificate Server or Cluster node.

☐ 6. If the system was a Certificate Server, perform an UPSTREAM restore of the Certificate Services database using the CertServ PlugIn.

☐ 7. If the system was a node of a Cluster and you need to restore the Cluster Quorum database, perform an UPSTREAM restore of the Cluster Quorum database using the Cluster PlugIn.

Using this procedure, the following system components of the system state are restored:

- Boot and system files. These are restored in step #3.
- The registry. The individual registry restore hive files are restored in step #3.
- The COM+ registration database. This is restored in step #3.
- The SysVol directory tree. This is restored in step #3.

- The Active Directory. This is restored in step #4B.
- The Certificate Server database. This is restored in step #6.
- The Cluster Quorum database. This is restored in step #7.

Multi-Processing UPSTREAM (v3.1.4a)

UPSTREAM is now automatically capable of supporting multiple simultaneous executing instances of UPSTREAM in the same directory in UNIX and Windows. Workpath, restarts and a number of other issues are automatically handled.

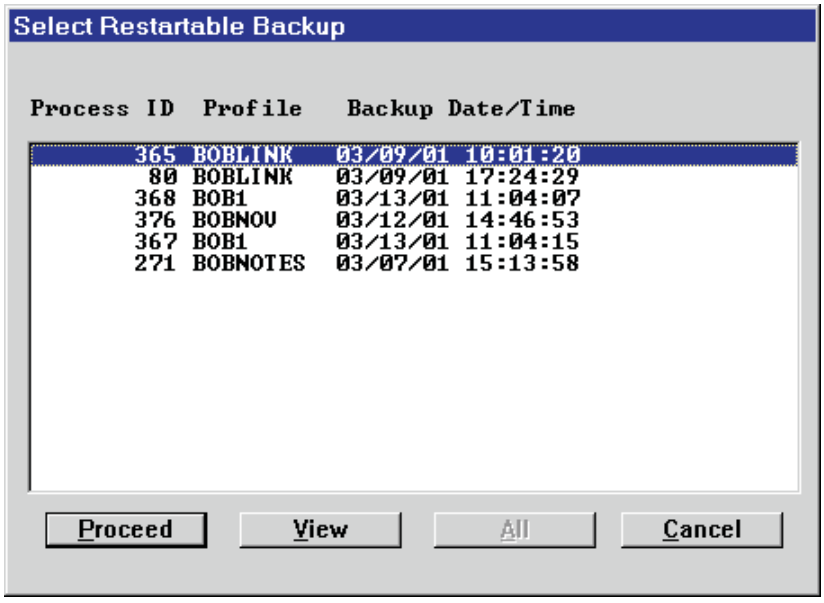
The existing multi-user facilities for Windows and OS/2 are still supported - and recommended particularly for handling multiple incoming requests from the host or the UPSTREAM Director. The multi-processing feature is intended to allow multiple copies of UPSTREAM to be run without having to worry about conflicting temporary files in the WORKPATH. However, all other multi-processing considerations discussed in the *Running More Than One Copy* chapter of the UPSTREAM manual still apply, communications in particular. In a future release, multi-processed remote initiates will use this technique and the existing multi-user facility will be deprecated.

No configuration or other changes are required to take advantage of this facility - it is the new operating mode for UPSTREAM. Note that this facility is only for UNIX and Windows - it is not available for Novell (NLM) or OS/2.

You can use this facility to share a copy of UPSTREAM on a network drive. The only note would be that if two instances of UPSTREAM running on different machines happen by chance to have the same process ID, the second instance would report a fatal error and not start. Simply restarting the second instance should resolve the problem. This is not recommended for unattended operations.

There are quite a number of minor differences in the way that UPSTREAM handles it's internal files. The main difference that a user would note relate to restart.

Previously, only the most recent restartable backup or restore was eligible for restart. Now, any failed restartable backup or restore can be restarted. From UPSTREAM, when you pull down the **Action** menu and select one of the restart options (**Restart Backup**, **Restart Restore**, **Kill Restartable Backup** or **Kill Restartable Restore**), you will see a new restart selection dialog:



The list displays the process ID, backup profile and formatted version date of the request.

The buttons are:

- **Proceed:** The highlighted backup or restore will be restarted or killed (based on the menu item you selected previously).
- **View:** Displays the UPSTREAM file viewer and allows you to see the parameters specified for the original request.
- **All:** Enabled only when you specified one of the Kill menu options, allows you to kill all of the pending restartable backups or restores.
- **Cancel**: Returns you to the main UPSTREAM screen.

Restartable backups or restores are preserved until they are not restartable or they are more than 7 days old. You can change the default aging time with the environment variable **USBACKFILEDAYSOLD**.

Any host initiated or unattended restart or kill restart request will process the most recent backup or restore by default. If you wish to specify a specific one use the non-repeating parameter RESTARTVERSIONDATE and specify the backup version date in 12-digit YYMMDDHHMMSS form.

Some of the minor differences relating to multi-processing are:

- All instances of UPSTREAM write to the common UPSTREAM log.
- UPSTREAM local reports continue to use the specified report file name (defaulting to *us.rpt*). When UPSTREAM is processing the backup or restore, the report is written to a temporary name (us.<pid>.rpt) and copied to the specified report name when the process has completed.
- Temporary files have the process ID in the name.
- us.ret and trace files do not have name changes.

Notes R5 Enhancements (v3.1.4a)

FDR/UPSTREAM has a number of improvements targeted specifically for Lotus Notes R5. These include:

- Multiple simultaneous backups running in parallel.
- Detection of new databases during incrementals.
- Support for all active logs.

Multiple Backups

The NotesR5 agent now supports multiple simultaneous backups. To do this you must:

- Logically separate the backups. You must create multiple, non-overlapping, UPSTREAM backups requests to separate backup profiles. If your data is stored on multiple drives or separate directories, this can be quite simple (one backup of the Notes data directory on the C: drive; another backup of the Notes data directory on the D: drive for example). Otherwise separate them by extension (*.NSF in one backup, *.NTF in another, *.BOX in yet another for example).
- Specify the log files in only one of these backups.

If you are performing a restore in which you wish to apply transaction logs there is no problem if the database is being restored from the backup profile used to store transaction logs. However, if you used a different backup profile for the transaction logs, you must specify the new PLUGINPARAMETERS value, **LOGBACKUPPROFILE** with the backup profile used for the transaction logs. Then if a transaction log is needed, it will be recovered correctly.

Incremental Detection of New Databases

There is a new PLUGINPARAMETERS value **DBCHANGEDCHECK**. Set to 'Y' if you wish to have UPSTREAM call Notes to determine if a given database is new and requires a full backup - it is more reliable than the archive bit or modification date.

This option is particularly useful for incrementals so that new databases are fully backed up and databases which do not need it are not. To best use it with incrementals, use the LOGFILES=Y option instead of LOGFILES=O and specify the databases you wish to include (with wildcards) in the same manner as you do for the full. It does not detect if a DBIID has changed, so databases with changed DBIIDs should be backed up manually or you should perform full backups immediately after system maintenance which cause DBIIDs to change (such as compaction).

If a database is new it may report UPSTREAM error #10143 and Notes error #5114 and the database will be fully backed up. It is not terribly useful for full merge backups as UPSTREAM will still use the last modification date to indicate if the file has changed, will most likely consider this to be a mismatched file and back it up fully. The default is 'Y'.

Active Transaction Logs

To assure that databases are completely recoverable, all active log files are now included in log file backups along with the most recent one. No changes are required, but you should expect your log file backups to be quite a bit bigger, particularly if you have specified a large transaction log size (as specified in the Domino Administrator). To reduce the size of your daily backups, you may want to consider reducing the size of your transaction logs.

Novell SMS Open File Support (v3.1.4a)

FDR/UPSTREAM, through it's use of Novell's SMS for file access, is capable of backing up open and active files on NetWare v5.1 NSS volumes.

To enable the facility, the procedure is:

☐ 1. Load the updated NSS modules on the NetWare 5.1 server, supplied in support pack 2 or later. Make sure to include the TSA as well.

☐ 2. From the server System Console, enter:

```
NSS /FileCopyOnWrite = <NSS_Volume_Name>
```

Repeat this step for each NSS volume.

☐ 3. Verify that Copy on Write is enabled for the target NSS volumes. From the server System Console enter:

```
NSS VOLUMES
```

Copy on Write should be displayed in the Attributes column.

The "Directory Quotas" and "File Copy On Write" features for NSS volumes are mutually exclusive. In other words, you may have one or the other of these features activated at one time but not both.

Minor Changes

Some of the minor changes in this release include:

- (v3.1.4c) (Win 2000) The WinCrypt plugin is no longer required. Encrypted files are handled automatically by UPSTREAM. The plugin is still included on the CD but is not installed by default.

- (v3.1.4c) (NetWare 5) UPSTREAM can now be run in a directory with a long name.

- (v3.1.4a) UPSTREAM will now support file names up to 255 characters. For all operating systems except NLM, this is also the default. UPSTREAM will use the specified MAXFILENAMESIZE environment variable during the build backup phase. If UPSTREAM/MVS is not v3.1.4 or later, the size may be negotiated downwards after the backup has started and additional files will be skipped. If you are running the NLM version with SMS and have USSMSLONGNAMES enabled, files will be skipped if you are running a pre- UPSTREAM/MVS v3.1.4; thus the NLM version still defaults to 230.

- (v3.1.4a) (Director) Performance tests for remote UPSTREAMs can now be specified in the Director. There's a push button **Performance...** for raw communications tests are in the *Target Systems List*. There is a **Performance tests** button for the other tests in the *Backup Specifications* dialog.

- (v3.1.4a) (UPSTREAM/SOS) The local backup dialog now allows entry of a VOLSER as well as the disk location. There is a new button **List Only**, available in the local backup and the FDRSOS Local Backup Admin dialogs which when pressed will display only disk information for valid local backup disks. Since this new facility may cause spurious errors and hangs, you are warned before it begins building the list.

- (v3.1.4a) (Linux) UPSTREAM now supports the Reiser file system as well as ext2 and NFS.

- (v3.1.4a) (Win32) If UPSTREAM is run as a service, it will be immediately terminated if the service is stopped. Similarly, if the Attach Manager is run as a service, stopping the service will stop the Attach Manager and all UPSTREAMs that it started. This is particularly important for Clustered environments during manual failover so that the UPSTREAM service can be started cleanly on the new node.

- (v3.1.4a) A new option is available on the restore More... dialog: **Fail restore on single file error**. If checked a restore will be immediately failed if any file has any file open or write errors. Even if this option is not checked, UPSTREAM will fail a restore if it gets a file error for a restore of only one file (a single file spec with no wildcards). This is a repeating parameter **FAILRESTOREONERROR**, with a default of 'N'.

- (v3.1.4a) A new report option value, **Files Excluded (Restore only)**, if checked will report on files which were excluded because they are in the exclude list. This parameter is particularly valuable for Windows 2000, where the exclude list is automatically generated by the UPSTREAM Windows 2000 agent according to Windows 2000 restore guidelines. It uses the existing parameter REPORTOPTIONS, with a new bit value of 256. Excluded files are also written to the UPSTREAM log file. If you wish, you can disable this additional logging with the environment variable **USDONTLOGEXCLUDEDFILES**.

- (v3.1.4a) The UPSTREAM log can now be automatically cleared after a backup completes. The overall parameter **MAXLOGDAYS** if non-zero, specifies the number of days worth of log information to preserve, similar to the uslogclr program.

- (v3.1.4a) UPSTREAM backups can now be specified to disk and be sent to tape only if the backup exceeds a certain size. The size of the backup is after the DASDOVERRIDE has been applied. The overall parameter is

SWITCHTOTAPEMB and the size is specified in megabytes (1,048,576 bytes). Note: Be aware that UPSTREAM will use the tape dataset name rather than the disk data set name specified in the profile which may cause issues with GDGs.

- ☐ (v3.1.4a) (Windows and OS/2) The UPSTREAM logo displayed on the screen has changed to the new logo.

- ☐ (v3.1.4a) Interactive backups, restores, etc. will now run pre-, post- and fail- process jobs.

- ☐ (v3.1.4a) (Novell SMS) You can specify a separate report of truncated file names when file name truncation is enabled by specifying the environment variable USSMSLONGNAMES. The new environment variable **USSMSTRUNCATEREPORT** is used to both activate the report and specify its file name.

- ☐ (v3.1.4a) (Oracle Recovery Manager) See the v3.1.5 documentation or call tech support before using.

- ☐ (v3.1.4a) The Windows install has reorganized JRE installation messages.

- ☐ (v3.1.4a) (Windows) USLOGCLR is now a 32-bit Windows application.

- ☐ (v3.1.4a) (Windows) UPSTREAM will write UTF-8 file names to the reports if UTF-8 unicode encoding was specified.

- ☐ (v3.1.4a) There is a new registration field Attended, which indicates whether a copy of UPSTREAM registered in attended or unattended mode. Only unattended UPSTREAM instances are eligible for control by the UPSTREAM Director. To avoid registration conflicts, the default for the configuration DYNAMICPCINPORT is now N and we do not recommend users use dynamic inports without consideration.

- ☐ (v3.1.4a) (Windows) Registry files can now be backed up if you are using a share mapped below the root.

- ☐ **NOTE:** UPSTREAM does not support IP addresses as machine names either directly (as a UNC) or as a shared drive.

- ☐ **NOTE:** Make sure that utilities **usorback**, **usormgr** and **usorrest** are owned by the Oracle database owner and have the *set-user-ID* and *set-group-ID* bits set. To set those bits on, enter:

```
chmod 6751 usorback
```

Technical Specifications

- Previous version:

  FDR/UPSTREAM PC version 3.1.4c is a production release updating v3.1.4b

- Operating systems affected by this upgrade:

  All

- FDR/UPSTREAM MVS release prerequisites:

  3.1.4 is recommended but all prior releases of FDR/UPSTREAM MVS will operate. You must have v3.1.4 for 255 byte file name support.

- Problem resolutions:
  - (v3.1.4c) (Oracle) A problem in Media Management backups has been fixed. We recommend upgrading to the newest version of UPSTREAM and performing a full as soon as possible.
  - (v3.1.4c) UPSTREAM will no longer report error #1809 No valid files to backup for incrementals when no files were found but the search was successful.
  - (v3.1.4c) (Win 2000) UNC names now work correctly in backing up the COM+ database (fixes v3.1.4b).
  - (v3.1.4c) (NLM) Multiple copies of UPSTREAM run correctly (fixes v3.1.4b).
  - (v3.1.4a) (Novell Auto-Recall) Expired stubs are selected for deletion correctly if you are using a non-SMS Novell Profile.
  - (v3.1.4a) (Novell Auto-Recall) Stubs can be backed up without recalling the files on NetWare v5.1.
  - (v3.1.4a) (SQL Server) UPSTREAM will tolerate SQL Server indicating end of data on a restore, without failing the restore.
  - (v3.1.4a) Backups that are canceled now appear to the host as having failed for a communications error. This allows the host to restart them using the RESTART batch parameter.
  - (v3.1.4a) (UNIX) Daylight savings time is correctly accounted for in determining incremental changed files.
  - (v3.1.4a) On restore excludes, the destination is now correctly checked rather than the original spec.
  - (v3.1.4a) (Unix) The file system type for exclude specs are no longer tested; “APPC RECEIVE FOR BACKUP_DESC_REP FAILED” messages will no longer occur.
  - (v3.1.4a) (Win32) Quoted command line parameters with embedded spaces are now handled correctly.
  - (v3.1.4a) (MSSQL, MSESE, WINAD) A second restore using one of these PlugIns will no longer restore from the information obtained during the first restore.
  - (v3.1.4a) (Director and End-User Restores) Dates in 2001 are displayed correctly.
  - (v3.1.4a) (Director) Passwords are transmitted to the host correctly.
  - (v3.1.4a) Passwords with special characters are transmitted to UPSTREAM/MVS correctly.
  - (v3.1.4a) Jobs are run with the correct security when you require a local login.

- (v3.1.4a) (Windows 2000) UPSTREAM will no longer abend if you attempt to back up files on a drive which does not have a system protected file on it. Contact Innovation for instructions on working around the problem with v3.1.4.
- (v3.1.4a) (Windows) UPSTREAM will no longer errantly report error #1268 when terminating in service mode.
- (v3.1.4a) (Novell Auto-Recall) The notifier can connect over any connection type (SPX or TCP) regardless of the connection type used by the NetWare Client. The recaller also takes will take less stack space and will no longer report errant C error #16 errors opening the return code file after a recall.
- (v3.1.4a) Hard links are restored correctly if a file date is existent in the default parameter file.

☐ Who should upgrade:

Users who need one of the problem resolutions or enhancements. Windows 2000 users should upgrade and verify that all components of the system state are included in their backups.

☐ New configuration parameters:

None.

☐ New overall parameters:

Name	Default	Required	Description
MAXLOGDAYS	0	No	If non-zero, clears out old log file entries after a backup. Specifies the number of days worth of log information to preserve.
REPORTOPTIONS (New value)	0	No	256: Files excluded during a restore are reported.
RESTARTVERSIONDATE	None	No	If you specify a restartable action type, the version date of the backup or restore which is being restarted. If the field is left blank, the most recent backup/restore is restarted.
SWITCHTOTAPEMB	0	No	If non-zero, disk backups will be sent to tape if the calculated size of the backup (after DASDOVERRIDE is applied) is greater than or equal to this value. Specify in megabytes (1,048,576 bytes).

☐ New file spec parameters:

Name	Default	Required	Description

AUTHORITATIVERESTORE (Win 2000)	N	No	'Y': Restore replicated directories authoritatively. 'N': Restore replicated directories non-authoritatively. Requires a reboot.
FAILRESTOREONERROR	N	No	'Y': The entire restore will be failed if there is a file open or write error to any file in this spec. 'N': File errors are logged and the restore continues.

- New environment variables:

Name	Default	Description
USBACKFILEDAYSOLD (Windows and UNIX)	7	Specifies the retention period in days for restartable backup and restore files.
USDONTLOGEXCLUDEDFILES	Not defined	UPSTREAM will log the names of files that are excluded from a restore. Setting this environment variable to any value will cause UPSTREAM to not log these messages.
USREPORTWAIT	1	Number of minutes to continue retrying appending a temporary report file to the base report file.
USSMSTRUNCATEREPORT (Novell SMS)	Not defined	Enables and specifies the file name of a report of truncated file names.

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